FLYING MODEL ROCKETS

SPRING / SUMMER 1981

ESTES®

A DAMON COMPANY

Spring 1981 Model Rocket News with Space Shuttle Feature Articles!

(See Pages 3 and 24 to 31)

Valuable Bonus Coupons Worth Up To $113.35 In Discounts And Special Offers!

NASA Photo

FREE! C5-3 Engines with the

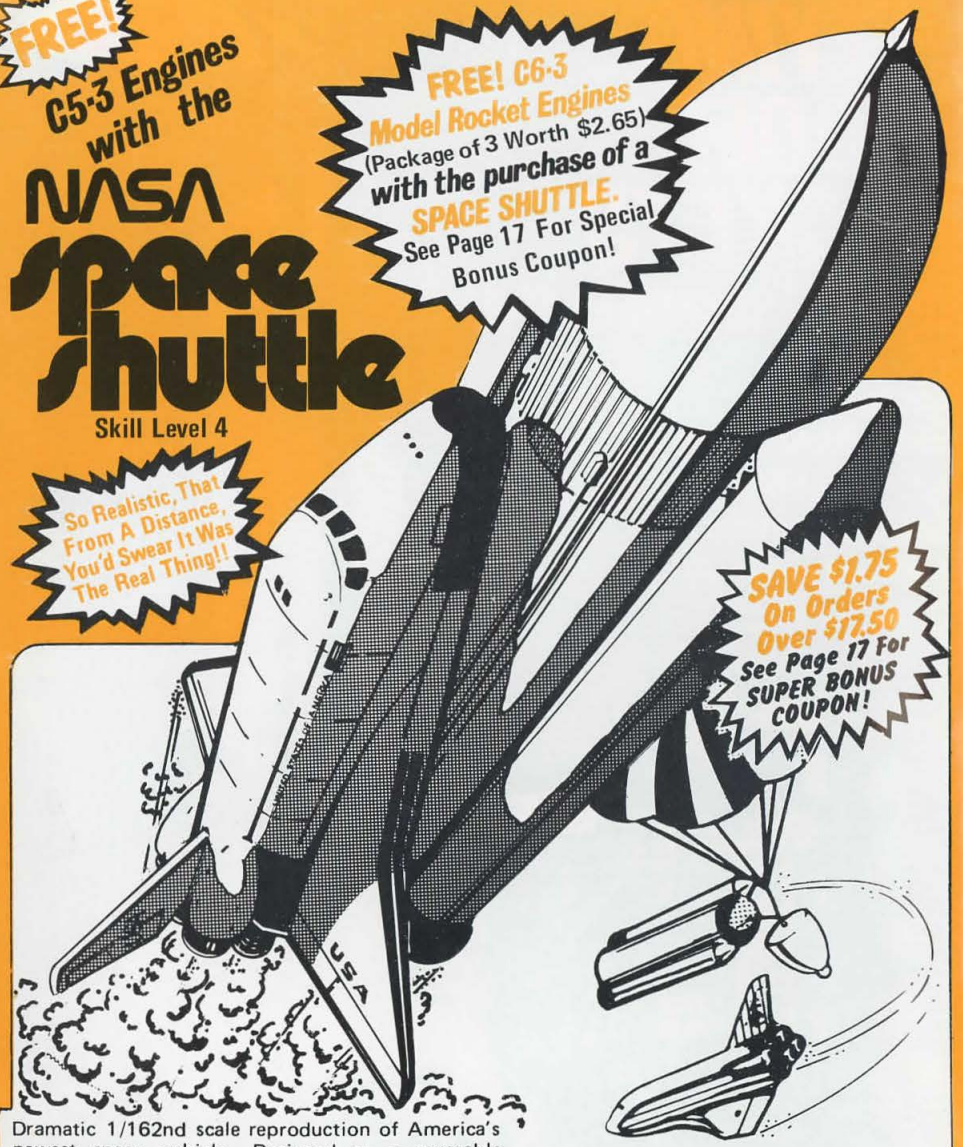
NASA space shuttle

Skill Level 4

FREE! C6-3 Model Rocket Engines (Package of 3 Worth $2.65) with the purchase of a SPACE SHUTTLE. See Page 17 For Special Bonus Coupon!

So Realistic, That From A Distance, You'd Swear It Was The Real Thing!!

SAVE $1.75 On Orders Over $17.50 See Page 17 For SUPER BONUS COUPON!



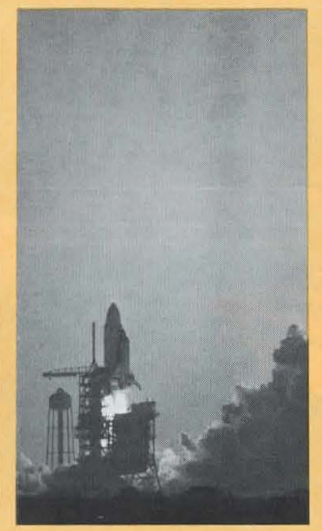
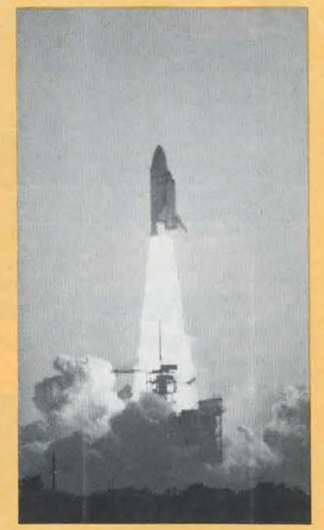
Dramatic 1/162nd scale reproduction of America's newest space vehicle. Designed as a reuseable near space transportation system with satellite deployment and retrieval capability. Delivers really spectacular flights. Semi-scale orbiter employs glide recovery just like the real thing while boosters and external tank return via 18" parachute recovery. Our model features special stabilizer fins for atmospheric flight which remove easily for display. Kit components include injection molded, vacu-formed plastic and die-cut parts. Incredible display model with authentic NASA decor.
Shuttle Length: 13.6" (34.5 cm) Dia. 2.04" (51.8 mm) Orbiter Length: 9.0" (22.9 cm) Orbiter Wingspan 7.1" (18.9 cm) Wt. 4.37 oz. (124 g). Ship. Wt. 16 oz.
ENGINES: C5-3 (1st Flt.) C6-3

No. 1284 . . . ONLY $13.00

Unless otherwise stated, all the model rocketry kits in this catalog are hobby kits requiring assembly. Launch system, engines, glue and finishing supplies are not included. Recommended for ages 10 to adult. Adult supervision suggested for those under 12 years of age when flying model rockets.

© Estes Industries, 1981

KIT FEATURE SYMBOLS
indicate the following kit features:

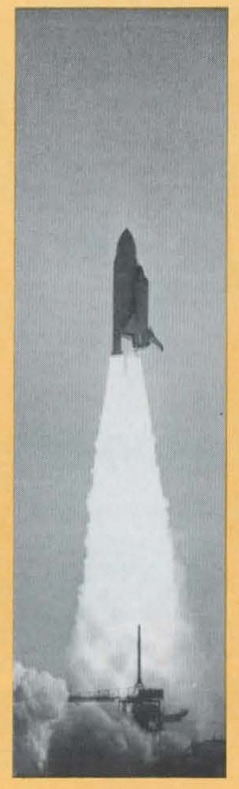



April 12, 1981

SPACE SHUTTLE COLUMBIA

Maiden Voyage

Photos Courtesy of Bill Stine



ESTES ASTROCAM 110™

Aerial Camera With DELTA II Rocket

FREE FILM!
Recieve A Free Roll Of 110 Color Print Film (ASA 400) When You Purchase An AstroCam 110 With Delta II Rocket!
See Page 17 For Bonus Coupon!

Actual "AstroCam 110" photo of Three Mile Island Facility, Middletown, PA. Taken by Scott Pearce, Westchester, PA.

Skill Level 2

Experience the thrill and excitement of taking incredible color aerial photographs from hundreds of feet in the sky. As your rocket reaches apogee and begins its descent to Earth, the ejection charge of your rocket engine trips the AstroCam 110's 1/500th sec. shutter and "snap" . . . you have just taken a dramatic aerial photograph from far above. The "new" AstroCam 110 uses high speed 110 color print film ASA 400 or equivalent (not included). film and developing are available locally.

Special features include easy, quick-assembly, high quality acrylic lens, molded plastic housing, glass first surface mirror, and high performance aerodynamic design for minimum drag and maximum altitude. Simple to operate and shoots one, crisp, full color 110 photo per flight. Launch with B8-5, B8-7, B14-5, B14-7, C6-5, or C6-7 engine.

Delta II launch vehicle features specially designed, pre-colored plastic fin-unit for consistently smooth and stable flights. Plus white body tube, quick-release engine mount and great looking, two-color kit decals with dual roll patterns. No painting required! Returns to Earth via 12" dia. parachute. *(Launch System, engines, glue, and film are not included.)*

FILM AND DEVELOPING AVAILABLE LOCALLY!

Take Incredible "Color" Aerial Photos From Hundreds of Feet In The Sky!

Specifications - Camera with Launch Vehicle
Lenght 19.1" (48.5 cm)
Diameter 1.34" (35.3 mm)
Weight 3.75 oz. (106.3 g)
Ship. Wt. 14 oz.

Recommended Engines
B8-5 B8-7 B14-5 B14-7
C6-5 C6-7)first Flight)

12

Cat. No. 1327 . . . . .
Only $20.00

Camera Specifications:
Lenght 6.5" (16.5 cm)
Diameter 1.39" (35.3 mm)
Weight *(Without Film)* 1.36 oz. (38.5 g)
Weight *(With Film)* 1.76 oz. (50 g)

GANTRY CLOSE OUT SALE!

HURRY! SUPPLIES ARE LIMITED!!

SAVE $2.75
BOMARC
NOW ONLY $6.25
See Page 17 For Bonus Coupon!

BOMARC

Skill Level 3
Beautifully detailed, 1/24th scale flying model of the famous U.S.A.F. surface-to-air interceptor missile. Great performance too with dramatic 18" parachute recovery. Ship. Wt. 12 oz.
Engines: B4-2 B4-4 B6-2 (First Flight) B6-4 C5-3 C6-3 C6-5

18

No. 0657
Reg. ~~$9.00~~

GLEAMS LIKE A JEWEL HIGH UP IN SPACE!

SAVE $2.75
SOLAR SAILER
NOW ONLY $6.25
See Page 17 For Bonus Coupon!

SOLAR SAILER

Skill Level 3
Simulates one of the newest, most sophisticated concepts for the 1980's, and like the Space Shuttle Enterprise, Estes engineers have it flying long before NASA does. Developed for low-cost, long duration, deep space missions using sunlight pressure to push away from Earth at speeds up to 35,000 mph. Our model features printed balsa fins, and giant 24" solar sail 'chute. Ship. Wt. 11 oz.
Engines: B4-2 B4-4 B6-2 B6-4 (First Flight) B8-5 B8-7 B14-5 C6-5

24

No.1297.....Reg. ~~$9.00~~

SAVE $3.00
INTERCEPTOR
NOW ONLY $6.50
See Page 17 For Bonus Coupon!

INTERCEPTOR

Skill Level 3
Futuristic version of real interplanetary interceptor. Deep space exotic design makes it the pride of any modeler. Delivers excellent performance for really sensational flights. Plus all die-cut balsa parts and detailed plastic nose cone, wing pods and tail cone. Ship. Wt. 12 oz.
Engines: B4-2 B6-2 B6-4 (First Flight) B8-5 B14-5 C6-5

18

No.1250.....Reg. ~~$9.50~~

HURRY! ORDER TODAY !! SUPPLIES ARE LIMITED!!!

Nearly 3 Feet Tall !

SAVE $3.25
maxi – ALPHA
NOW ONLY $7.75
See Page 19 For Bonus Coupon!

maxi Alpha

Skill Level 2
Giant scale version of our most popular rocket the Alpha. Great for demonstrations with slow realistic lift-off and flights up to 500 feet with "D" engine. Assembles in approximately 30 minutes. Recommended for 3/16" launch rod. Ship. Wt. 16 oz.
Engine: D12-5

No. 1291.....Reg. ~~$11.00~~ 24

SAVE $2.25
MARS SNOOPER II
NOW ONLY $5.00
See Page 17 For Bonus Coupon!

MARS SNOOPER II

Skill Level 4
Looks like a real spaceship. Futuristic decor, advanced styling, and simulated touchdown pads gives it a real science-fiction appearance. Ship. Wt. 8 oz.
Engines: A8-3 (First Flight) B4-2 B4-4 B6-2 B6-4 B8-5 B14-5 C6-5

No. 1220.....Reg. ~~$7.25~~ 18

SAVE $1.75
ALIEN INVADER
NOW ONLY $4.00
See Page 17 For Bonus Coupon!

Alien INVADER

Skill Level 3
By computer enhancement of declassified portion of sensor readings, Estes engineers have produced a replica of the Alien Invader spacecraft. Data indicates spacecraft capable of limited atmospheric operations. Your model includes a plastic forward command hull, engine-engineering section and outboard atmospheric propulsion units. Ship. Wt. 8 oz.
Engines: 1/2A6-2 A8-3 (First Flight) B4-4 B6-4 B8-5 B8-7 B14-5 B14-7 C6-5 C6-7

No. 1281.....Reg. ~~$5.75~~ 12

SAVE $1.75
On Orders Over $17.50
See Page 17 For SUPER BONUS COUPON!

Nearly 4 Feet Long!

SAVE $1.50
NOMAD
NOW ONLY $4.00
See Page 19 For Bonus Coupon!

NOMAD
SURFACE TO SURFACE MISSILE

Skill Level 2
Super long scale-like surface-to-surface missile with ICBM decor. Nearly 4 feet tall, this big bird is easy-to-assemble with plastic nose cone, adapter section and fin-unit. Features a really long payload section. Length: 44.25" (112.4 cm) Dia. .976" (24.8 mm) Wt. 1.48 oz. (42 g).
Engines: A8-3 (First Flight) B4-4 B6-4 B8-5 B14-5 C6-5 C6-7

No. 1344.....Reg. ~~$5.50~~ 12

Over 4 Feet Tall !

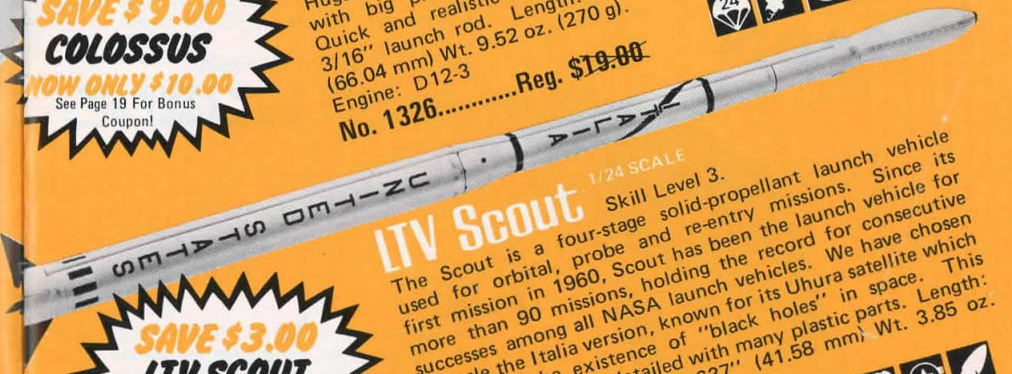
PERFECT FOR DEMONSTRATIONS!

SAVE $9.00
COLOSSUS
NOW ONLY $10.00
See Page 19 For Bonus Coupon!

COLOSSUS

Skill Level 2
Huge addition to our Maxi-Brute fleet. Over 4 feet long with big plastic nose cone and press-fit plastic fin-unit. Quick and realistic lift-off. No painting required! Uses 3/16" launch rod. Length: 51.25" (130.18 cm) Dia. 2.6" (66.04 mm) Wt. 9.52 oz. (270 g).
Engine: D12-3

No. 1326.....Reg. ~~$19.00~~ 24



1/24 SCALE

SAVE $3.00
LTV SCOUT
NOW ONLY $6.50
See Page 19 For Bonus Coupon!

LTV Scout

Skill Level 3.
The Scout is a four-stage solid-propellant launch vehicle used for orbital, probe and re-entry missions. Since its first mission in 1960, Scout has been the launch vehicle for more than 90 missions, holding the record for consecutive successes among all NASA launch vehicles. We have chosen to scale the Italia version, known for its Uhura satellite which discovered the existence of "black holes" in space. This model is extremely detailed with many plastic parts. Length: 36.09" (91.67 cm) Dia. 1.637" (41.58 mm) Wt. 3.85 oz. (109 g).
Engine: C6-5

No. 1287.....Reg. ~~$9.50~~ 18

SAVE $1.75
mini – BOMARC
NOW ONLY $3.75
See Page 19 For Bonus Coupon!

mini BOMARC

Skill Level 3
Scale model of famous surface-to-air interceptor missile. Authentic Canadian Air Force decor. Ship. Wt. 5 oz.
Engines: 1/2A3-2T (First Flight) A3-4T A10-3T

No. 0805
Reg. ~~$5.50~~ 10

STAR WARS THE EMPIRE STRIKES BACK™*

REAL FLYING STAR WARS™* MODEL ROCKETS!

SAVE $5.05 X-WING Fighter™* NOW ONLY $4.95 See Page 19 For Bonus Coupon!

X-WING Fighter™*

Skill Level 2

Scale model of the T-65 X-Wing Fighter piloted by Luke Skywalker during the Rebel Forces attack on the Imperial Death Star. Although simple to construct, this model retains all the realism and detail of the actual models used in the film. Great for demonstrations with flights over 300 feet and 12" recovery 'chute. Highly detailed with authentic 3-color decals makes it a spectacular display model too! Small balsa fins have been added for Earth flight.
Ship. Wt. 12 oz.
Engines: B4-2 B6-2 C5-3 C6-3 (First Flight)

No. 1393....Reg. ~~$10.00~~ 12

SAVE $5.05 "ROBOT HERO" R2-D2™* NOW ONLY $4.95 See Page 19 For Bonus Coupon!

"ROBOT HERO" R2-D2™*

Skill Level 2

Own your very own STAR WARS R2-D2 robot! Destined to become the most famous movie robot of all time, our model is 1/5 actual size and actually flies. Artoo "pops his top" in normal model rocket fashion to deploy an 18" dia. recovery parachute for landing on the planet of your choice. Kit features include a molded plastic body dome and body skirt, a precisely detailed 4-color body wrap-on, quick-change engine mount and stabilizer leg-fins. This cantankerous droid is certain to be everybody's favorite at your launch site or on your display shelf.
Ship. Wt. 16 oz.
Engines: B6-2 (First Flight) C5-3 C6-3

No. 1395.....Reg. ~~$10.00~~ 18

HURRY! SUPPLIES ARE LIMITED! ORDER TODAY!!

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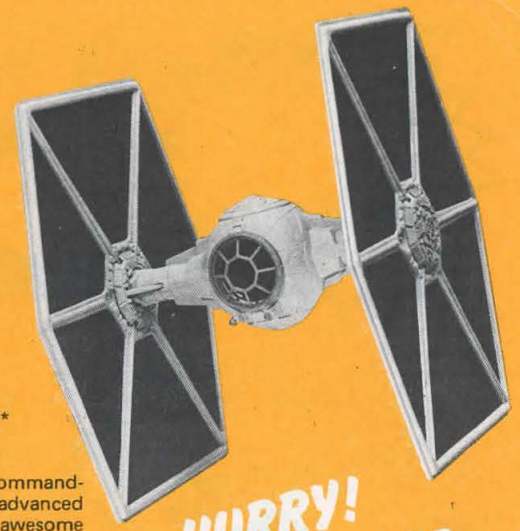
SAVE $5.05 TIE Fighter™* NOW ONLY $4.95 See Page 19 For Bonus Coupon!



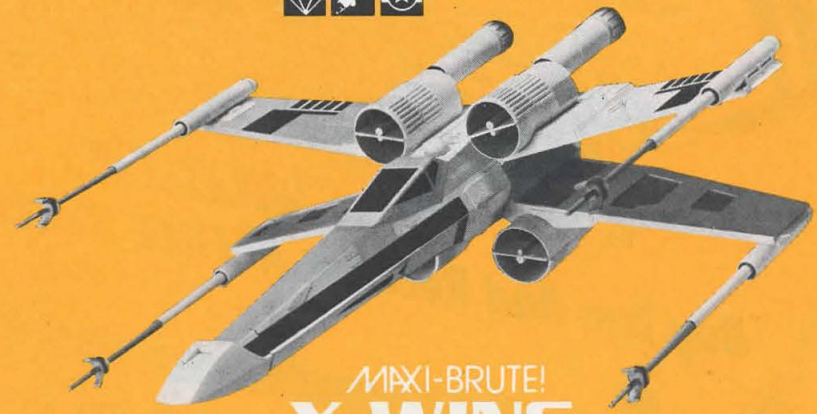
T.I.E. Fighter™*

Skill Level 3

Primary attack craft of the Imperial Forces commanded by Lord Darth Vader. Technologically advanced propulsion systems combined with its awesome appearance give the TIE Fighter an overall effect of Gothic Evil. Kit features include highly detailed, pre-colored plastic cockpit and fuselage, quick-release engine mount, and big 18" recovery 'chute. Special parachute recovery probe attaches quickly for flight and removes easily for display. Ship. Wt. 12 oz.
Engines: C5-3 (First Flight) C6-3

No. 1394.....Reg. ~~$10.00~~ 18

HURRY! SUPPLIES ARE LIMITED!!



SAVE $12.00 MAXI-BRUTE! X-WING Fighter™* NOW ONLY $12.95 See Page 19 For Bonus Coupon!

MAXI-BRUTE!

X-WING Fighter™*

Skill Level 2

Darth Vader and his Imperial Forces will turn and run when confronted by this giant, easy-to-assemble, T-65 X-WING FIGHTER. Includes fantastic detailing and authentic decor. "D" engine powered for great performance and spectacular flights over 300 feet. Kit components include die-cut balsa parts and highly detailed plastic fuselage, engines and laser pods. Plus quick-release engine mount, scale decals, big 24" parachute recovery and attractive display stand. Small fins have been added for Earth flight and a 3/16" launch rod is recommended for lift-off. Ship. Wt. 2 lbs.
Engine: D12-3

No. 1396 .....Reg. ~~$24.95~~ 24

(worth $1.95) when you purchase any two of these 1981 kits together.

See Page 19 For Bonus Coupon!

"FREE"

STREAK Skill Level 1

SKILL LEVEL 3

Lightweight, wind-cheating design (1/8 oz. without engine). Great for contests and records. Features simple feather-weight recovery. Length: 5.6" (14.2 cm) Dia. 0.720" (18.3 mm) Wt. 0.1 oz. (3 g).
Engines: 1/2A6-4 (First Flight) A8-5 B4-6 B6-6 B8-7 B14-7 C6-7

No. 1204 $1.95 VALUE

NEW!

StarshipNOVA

Truly awesome in appearance, this inter-galactic explorer is believed to be outfitted with both conventional atomic engines and hyper-space starflight drive. Heavily armed with multiple phaser banks, photon torpedos, and energy deflection shields, the Nova is prepared to meet any foe. The Estes version of the magnificent starship is perfect for demonstrations and really great for display. Length: 19.75" (50.2 cm) Dia. .976" (24.8 mm) Wt. 2.3 oz. (65 g).
Engines: B4-2 (First Flight) B6-2 C5-3 C6-3

No. 1371.....$6.00

Buy Two And Receive A "FREE STREAK"!

Nearly 4 Feet Long

alien explorer

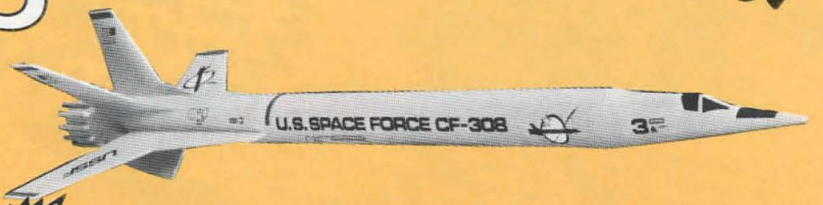
NEW!

Incredible alien starship believed to be from a distant galaxy. Is it friend or foe? Its size and unique appearance make it a most dramatic demonstration and display model. Really spectacular lift-off and recovery. Length: 45" (114.3 cm) Dia. .976" (24.8 mm) Wt. 2.43 oz. (68.8 g).
Engines: B6-2 B6-4 (First Flight) B8-5 C6-5

No. 1372.....$7.50

"1981 New Products."

SKILL LEVEL 3



NEW!

Sleek interplanetary interceptor with futuristically detailed nose cone. A really sharp display model with starfight camouflage decor. Great demonstration model with flights up to 900 feet. Length: 25.5" (64.8 cm) Dia. 1.325" (33.7 mm) Wt. 2.6 oz (72.4 g).
Engines: B4-2 B6-2 B6-4 (First Flight) B8-5 C6-3 C6-5

No. 1367.....$6.00

NEW!

S.S. CASSIOPEIA

Envisioned as an interplanetary passenger starship by Estes engineers. This impressive model is a challenge to build and beautiful to display. Dramatic flights up to 900 feet. Length: 32" (81.3 cm) Dia. .976" (24.8 mm) Wt. 2.2 oz. (62.5 g).
Engines: B4-2 B4-4 B6-2 B6-4 (First Flight) B8-5 C6-5 C6-7

No. 1369.....$6.00

NEW!

PIGEON

Very exotic, two-stage, interplanetary voyager. Features highly detailed futuristic nose cone, plus simulated touch-down struts. Envisioned as a deep space research vehicle of the 21st Century. Length: 26.6" (67.6 cm) Dia. 1.325" (33.7 mm) Wt. 2.7 oz. (77 g).
Engines: Single Stage A8-3 B4-4 B6-4 (First Flight) B8-5 C6-5 Upper Stage A8-5 (First Flight) B4-6 B6-6 B8-7 C6-7 Booster Stage A8-0 (First Flight) B6-0 B8-0 C6-0

No. 1363.....$7.00

EMERGENCY REPAIR KIT

"FREE"

"FREE" EMERGENCY REPAIR KIT (worth $2.00) when you purchase any one of these kits.
See Page 19 For Bonus Coupon!

A must for every range box. Features many essential materials for "on-the-spot" repair of your model rockets. Includes: Recovery Wadding—144" Shroud Lines—1/8" and 1/4" Shock Cords — Shock Cord Mounts — Launch Lugs 12" Parachute—Recloseable Pouch—Screw Eyes—Universal Safety Key — White Glue Packet — Launch Rod Safety Cap Tape Discs—Sandpaper **No. 2233 $2.00 VALUE**

SKILL LEVEL 2

MaxiIcarus

Huge super "D" engine powered payload model with large see-thru cargo section. Delivers spectacular flights over 1,000 feet. Over 6 cubic inches or up to 80 grams of payload capacity. Length: 29.75" (75.5 cm) Dia. 1.64" (41.6 mm) Wt.3.2 oz. (90 g).
Engine: D12-5
No. 1331..... $9.00

SKILL LEVEL 3

MULTI ROC

Really exciting multi-purpose sport flyer featuring large payload section, high performance parasite glider, and two-stage booster power. Can be flown in eight different flight configurations. Payload section is perfect for small telemetry or insect cargos. Parasite glider releases from upper stage rocket at apogee and is capable of glide times of more than 30 seconds. Booster section features pop-and-go staging plus tumble recovery. Length: 24.5" (62.2 cm) Dia. .98" (24.9 mm) Wt. 1.94 oz. (55 g) with glider.
Engine: Single Stage A8-3 B4-4 B6-4 B8-5 B14-5 B14-7 C6-5 Upper Stage A8-5 (First Flight) B4-6 B6-6 B8-7 C6-7 Booster Stage A8-0 (First Flight) B6-0 B8-0 C6-0
No. 1329..... $9.00

SKILL LEVEL 4

BOEING A.L.C.M. CRUISE MISSILE

The Cruise Missile is America's newest weapon system. The Estes near-scale version of this vehicle is a challenging model with blowmolded plastic body, die-cut plastic fins & wings, and injection molded plastic parts. Wings swing-out for display.

Length: 12.3" (31.2 cm)
Wing Span 7.75" (19.69 cm)
Wt. 2.79 oz. (78.8 g).
Engines: A8-3 B4-4 (First Flight) B6-4 B8-5 B14-5 C6-5
No. 1336..... $9.00

SKILL LEVEL 5

SATURN V

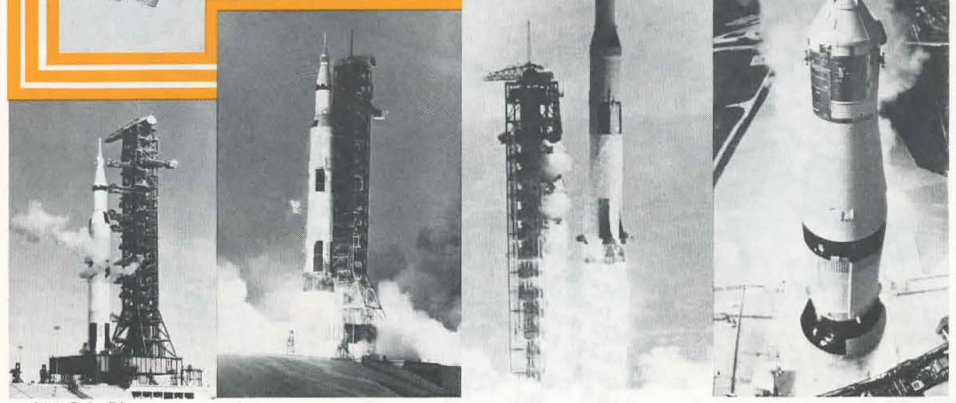
3 FREE SUPER POWERED D12-3 ENGINES ($4.95 Value) when you purchase the SATURN V
See Page 19 For Bonus Coupon!

OVER 43" TALL

Engines, Launch System, Glue, and Paint not included. Ship. Wt. 3 lbs. 5 oz.

A truly magnificent scale reproduction of the world's most famous rocket . . . the mighty Saturn V. First space vehicle to carry men to the moon and most recently utilized to place Skylab in orbit around Earth. Scaled to 1/100th of its actual size, our model stands an impressive 43-1/2" tall. Single "D" engine power gives this baby a spectacular Cape Canaveral style lift-off. Apollo capsule has life-like recovery with bright 12" orange and white 'chute. Precision molded plastic engine nozzles and Apollo capsule with escape tower give detailed authenticity. Corrugated body wrap-ons make this one of our most precise scale models. Also includes Tech Report on clustering. Length: 43.5" (110 cm) Dia. 3.938" (100 mm) Wt. 9.9 oz. (280 g). ENGINES: May be flown as a 3 engine cluster or single engine. Cluster power: C5-3 or C6-3 (3 required). "D" Power: D12-3 (1 required).

No. 1236.....ONLY $29.95



—NASA Photos.

INTERPLANETARY VOYAGERS

INTERCEPTOR Skill Level 3

Futuristic version of real interplanetary interceptor. Deep space exotic design makes it the pride of any modeler. Delivers excellent performance for really sensational flights. Plus all die-cut balsa parts and detailed plastic nose cone, wing pods and tail cone. Ship. Wt. 12 oz.
Engines: B4-2 B6-2 B6-4 (First Flight) B8-5 B14-5 C6-5

No. 1250.....Only $9.50

43" Long!

Andromeda Skill Level 3

Designed for journeys to distant planets this incredible "starship of the future" will be an outstanding addition to your model rocket collection. Performing interplanetary missions within the galaxy, our engineer's conception of the actual ship features simulated hybrid fission-ion propulsion engines, forward crew module and colorful mission decor. This beauty is over 43" long and represents a unique entry to our own Starship Fleet. Andromeda's flights are most spectacular. Length: 43.3" (110 cm) Dia. 0.736" (18.7 mm) Wt. 3.0 oz. (85 g).
Engines: B4-2 B4-4 B6-2 B6-4 (First Flight) B8-5 B14-5 C6-5

No. 1273...Only $9.50

SAVE $1.75 On Orders Over $17.50 See Page 17 For SUPER BONUS COUPON!

SAILER SOLAR

Simulates one of the newest, most sophisticated concepts for the 1980's, and like the Space Shuttle Enterprise, Estes engineers have it flying long before NASA does. Developed for low-cost, long-duration, deep space missions using sun-light pressure to push away from Earth at speeds up to 35,000 mph. Our model features printed balsa fins, and giant 24" solar sail 'chute. Ship. Wt. 11 oz.
Engines: B4-2 B4-4 B6-2 B6-4 (First Flight) B8-5 B8-7 B14-5 C6-5

No. 1297.....Only $9.00

FREE B6-4 MODEL ROCKET ENGINES (Pkg. of 3 Worth $2.45) when you get any one of these far-out Interplanetary Voyagers See page 21 for Special Bonus Coupon!

SCISSOR-WING TRANSPORT Skill Level 3

This exciting bird introduces the revolutionary new Scissor-Wing concept. Features super SST styling and high flight reliability. Capable of glide times of more than 60 seconds. Internal ejection power pod features vertical stabilizer fins. Comes ready-to-assemble with die-cut parts and two-color decals. Length: 22.75" (57.7 cm) Body Dia. 0.976" (24.8 cm) Wing Span 16" (40.6 cm) Wt. w/pod 2.5 oz. (71 g). Wt. w/out pod 1.8 oz. (51 g).
Engines: B4-2 (First Flight) B6-2 C5-3 C6-3

No. 1265.....Only $8.50

SPACE TRANSPORTER AMERICA Skill Level 3

Scale-like model suggests America's future "single-stage-to-orbit" (SSTO) concept. Gigantic space booster will carry huge payloads into Earth orbit and then return like an airplane. Kit includes plastic nose cone and display tail unit with scale engine nozzles. Really impressive flights. Length: 21.75" (55.3 cm) Dia. 1.637" (41.6 mm) Wing Span 7.0" (17.8 cm) Wt. 2.5 oz. (70 g).
Engines: B4-2 B6-4 (First Flight) C6-5

No. 1338.....Only $7.75

Orbital Transport Skill Level 4

Only a gleam in the eye of NASA, but it's flying for Estes rocketeers right now! Astonishingly realistic recovery system where mothership returns to Earth via huge 18" parachute and interplanetary orbiter glides home. Long and sleek, developed for both orbital and near-space missions. Transport vehicle and glider fly piggy-backed and separate at apogee for spectacular dual recovery. Transport Ship Length: 23" (58.4 cm) Dia. 0.976" (24.8 mm) Wing Span 7.9" (20 cm) Wt. 2 oz. (56 g). Re-entry Vehicle Length: 8.6" (21.8 cm) Dia. 0.736" (18.7 mm) Wing Span 5" (12.7 cm) Wt. 0.5 oz. (14 g).
Engines: B4-2 B4-4 B6-2 B6-4 (First Flight) B8-5 B14-5 C6-5

No. 1242.....Only $7.50

Designer's Special

Ideal parts assortment for the creative rocketeer. Develop your own R & D Program. Over 75 pieces at an excellent savings!

Body Tubes
2 BT-5
2 BT-20
2 BT-50
1 BT-55
1 BT-60

Nose Cones
1 BNC-5E
1 BNC-5S
1 BNC-20B
1 BNC-20R
1 PNC-50K
1 PNC-50Y
1 PNC-55AC
1 PNC-60L

Fin Material
2 BFS-20
2 BFS-30
2 BFS-40

Parachutes
1 PK-8
2 PK-12
1 PK-18
1 PK-24

Recovery Equipment
3 Shock Cord 1/8"X18"
1 Shock Cord 1/8"X36"
1 Shock Cord 1/4"X36"
1 Streamer Material 1"X30"
6 Screw Eyes

Miscellaneous
3 Engine Blocks (EB-20A)
3 Engine Holders (EH-3)
3 Engine Holders (EH-2)
1 Engine Mount (EH-2050)
1 Engine Mount (EH-2060)
1 Nose Block (NB-20)
1 Nose Block (NB-50)
1 Stage Coupler (JT-55C)
1 Stage Coupler (JT-60C)
1 Balsa Adapter (TA-2050A)
1 Multi-Purpose Paper Adapter Set (TA-1)
12 Launch Lugs (2-3/8" Long)
1 Alpha Book of Model Rocketry
1 Fin Pattern Sheet No. 2
1 Fin Pattern Sheet No. 3

Ship. Wt. 2 lbs.

Cat. No. 1463 **Reg. ~~$16.95~~**

HIGH PERFORMANCE WIZARD

Skill Level 1

- *Kit Decals
- *Easy-To-Assemble
- *Huge 30" Streamer Recovery
- *Flights Up To 1600 Feet
- *Die-Cut Balsa Fins
- *12" Long (30.5 cm)

SAVE $1.50
Introduce Your Friends To Model Rocketry and get a WIZARD KIT for Only 75¢
See Page 21 For Bonus Coupon!

Recommended Engines:
1/2A6-4 A8-3 A8-5 (First Flight)
B4-4 B4-6 B6-4 B6-6 B8-5 B8-7 C6-7

Ship. Wt. 5 oz. Cat. No. 1292 . . . . . **Reg. ~~$2.25~~**

Just fill-in the names of four of your friends on the form below who would like to receive a copy of our new, full-color, 64 page, Estes Catalog and we'll send you a Wizard rocket kit for . . . Only 75¢

Be sure to include this Special Form and Bonus Coupon with your next order!

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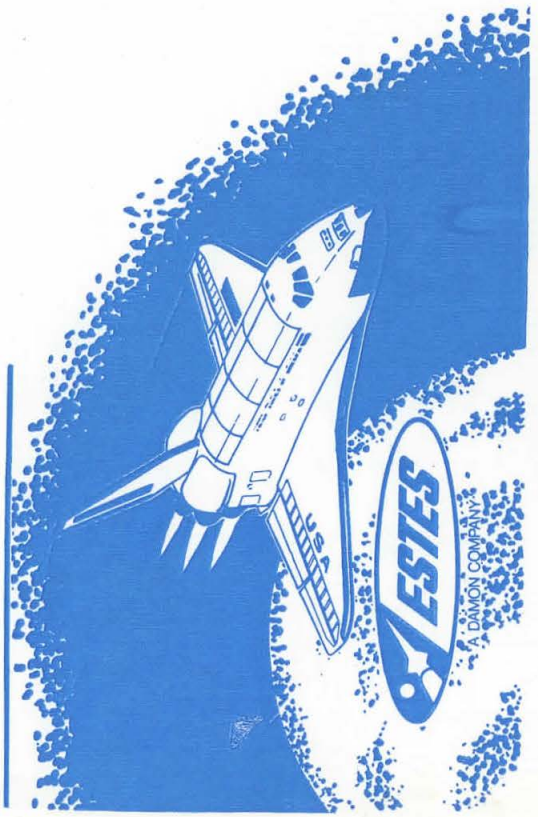
Be Sure To Enclose Special Offer Coupons

Place Stamp Here

ESTES INDUSTRIES
"Model Rocket Capitol of the World"
PENROSE, CO. 81240 USA



HOW TO ORDER — FOLLOW THESE EASY STEPS FOR BEST SERVICE

HOW TO ORDER — FOLLOW THESE EASY STEPS FOR BEST SERVICE

This order form replaces all previous order forms. Please be sure that you use the correct and full catalog number for each item when you order. All prices are subject to change without notice. WHEN SENDING ORDER BE SURE TO GIVE ZIP CODE IN YOUR ADDRESS.

POSTAGE

Estes Industries ships all retail orders POST-PAID in the U.S. by regular land mail, UPS, or by the customer's choice of carrier. If the customer requests a carrier other than regular land mail he will be charged for any additional shipping costs.

PAYMENT ON ORDER

Full payment must accompany all orders. Please send all remittances by either check or money order, both for your protection and our convenience. If you do send currency, be sure your envelope has sufficient postage, is properly sealed, and is addressed correctly to assure delivery. Coins should be attached to a separate sheet of paper, not to the order blank. Use a single strip of masking tape to hold the coins in place. Avoid the mailing of coins, as they are easily lost in the mail. We cannot assume responsibility for the loss of coins, currency, or orders in the mail. Remember to include sufficient funds with your order. For your protection, we do not ship orders C.O.D. Proper attention to these details will result in speedier service for you.

IMPORTANT

Estes model rocketry products are recommended for ages 10 to adult. Adult supervision is suggested for those under 12 years of age when flying model rockets.

Your order may, for various reasons, have to be shipped in more than one package. If all of your order does not come at the same time, please be patient, give the Post Office, U.P.S., or freight company a few days to mix things up and sort them out again.

NOTE: All foreign orders require additional postage. Please write for more information on postage and mailing restrictions.

PRIORITY MAIL (Air Mail) SERVICE

While Estes Industries specializes in fast service, sometimes extra speed is necessary. The Post Office offers a service called Priority Mail which gives packages and parcels the fastest handling and transportation possible. PRIORITY MAIL CANNOT INCLUDE MODEL ROCKET ENGINES, AS ORDERS CONTAINING ENGINES CAN ONLY BE SHIPPED BY PARCEL POST AT THIS TIME.

For other items on which you desire **extra** rapid delivery, additional postage may be included for Priority Mail. Shipping weights are given on all items. Total up the **shipping weights** on the items you are ordering, then find the amount to allow for extra postage on the chart below. When your order is processed you will be charged only for the difference between regular parcel post and priority mail - any excess will be refunded.

WEIGHT (UP TO BUT NOT OVER)		10 oz. to 1 lb.	2 lbs.	3 lbs.	4 lbs.
Allow →		$ .80	$1.13	$1.51	$1.93
5 lbs.	6 lbs.	7 lbs.	8 lbs.	9 lbs.	10 lbs.
$2.48	$3.13	$3.73	$4.33	$4.93	$5.53

For orders 9 ounces or less, send 9¢ per ounce.

FULL ONE YEAR WARRANTY

ESTES. A DAMON COMPANY

Your Estes product is warranted against defects in materials or workmanship for one year from the date of the original purchase. Any Estes product which, because of a manufacturing mistake, malfunctions or proves to be defective within the one-year warranty period will be repaired or replaced, at Estes' option and at no charge to you, provided it is returned to Estes with proof of purchase.

This warranty does not cover incidental or consequential damage including injury or damage to persons or property caused by the use, abuse, misuse, failure to comply with operating instructions or improper storage of the warranted product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

For repair or replacement under this warranty, please return the defective part of your Estes product with proof of purchase to: Estes Industries, Customer Service Department, Penrose, Colorado 81240.

"Estes is an equal opportunity employer."

TEAR HERE AND INSERT IN ENVELOPE

Thank you for ordering

TEAR HERE AND INSERT IN ENVELOPE

FOLD HERE AND SEAL

HAVE YOU ORDERED EVERYTHING YOU NEED? IS YOUR MONEY ORDER OR CHECK ENCLOSED? DID YOU CHECK YOUR MAILING ADDRESS AND ZIP? DON'T FORGET TO SEND A FRIEND AN ESTES CATALOG!

–HELP US TO SERVE YOU BETTER–

Your comments will assist us in providing you with better service and even more exciting products.

1. What types of scale models would you like to see Estes produce? _____

2. Do you prefer ☐Large or ☐Small size models?

3. Do you think Estes kits are generally ☐Easy, ☐Average or ☐Difficult to assemble considering their recommended skill level?

4. Are Estes kit instructions easy to follow? ☐Yes ☐No

5. Would you prefer more plastic parts for simplier assembly and better detail? ☐Yes ☐No

6. What Skill Level of kits do you prefer to build?
☐1 ☐2 ☐3 ☐4 ☐5

7. My three favorite types of model rockets are (Mark 3 boxes):
☐Single Stage ☐Interplanetary Voyager
☐Sport Flier ☐Multi-Stager
☐Mini-Brute ☐Payload
☐"D" Powered ☐Boost Glider
☐Scale Model ☐Maxi-Brute

8. I became interested in model rocketry because of:
☐a friend ☐film ☐gift
☐school ☐magazine ad ☐hobby shop
☐rocket club ☐saw a launch ☐department store
☐article ☐comic book
☐TV
☐other _____

9. My favorite type of scale model is:
☐Military Scale ☐NASA Scale ☐Sounding Scale

10. What product other than model rockets would you like to see Estes produce:
☐Electric RC Cars/ ☐Kits ☐Pre-Assembled
☐Powered Boats/ ☐Kits ☐Pre-Assembled
☐RC Airplanes/ ☐Kits ☐Pre-Assembled
☐U-Control Airplanes/ ☐Kits ☐Pre-Assembled
☐Solar Kits
☐Slot Racing ☐HO Scale ☐1/32nd. Scale
☐Other _____

11. Age ____ Grade ____ 12. ☐Male ☐Female

— THANK YOU FOR YOUR ASSISTANCE —

Des

Ideal part rocketeer Program. savings!

Cat. No.	
Body Tub	
2	BT-5
2	BT-20
2	BT-50
1	BT-55
1	BT-60
Nose Con	
1	BNC-5
1	BNC-5
1	BNC-2
1	BNC-2
1	PNC-5
1	PNC-5
1	PNC-5
1	PNC-6
Fin Mater	
2	BFS-2
2	BFS-3
2	BFS-4
Parachute	
1	PK-8
2	PK-12
1	PK-18
1	PK-24
Ship. W	

HIGH W

*Kit De
*Easy-
*Huge
*Flight
*Die-C
*12" L

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City
State

Name
Addre
City
State

ESTES ORDER FORM

ESTES INDUSTRIES, PENROSE, COLO. 81240

	Cat. No.	Qty.	Product Description	Unit Price	Total
1	#1447	☐	EAC Membership Kit		
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

PLEASE PRINT PLAINLY IN INK
(If additional space is needed use a separate sheet of paper.)

ORDER DATE
EFFECTIVE 9-1-'80

Merchandise Total
Priority Postage (If Desired) / State Sales Tax 3% (Colo. Residents Only)
Add $1.50 For Handling
Amount This Order
Add Balance Due Estes Ind. From Previous Order
Subtract Previous Order Credit (Credit Slip(s) Enclosed)
TOTAL PAYMENT ENCLOSED

Send a Friend a Catalog.

☐ **I am an "Active" EAC Rocketeer.**

MOVED RECENTLY? If you have moved since your last order please give us your old address.

NAME _____
ADDRESS _____
CITY _____ STATE ____ ZIP ____

400A
364K
363K
362H
361H

Please Print Name And Address Below Unless It Appears On Label Correct Address On Label If Necessary.

Your Name _____
Address _____
City _____
State _____ ZIP CODE _____
PHONE ( ) _____ Birth Date ___/___/___

For Estes Use Only — mo. day yr

1 ____ EAC ____
2 ____ 3 ____

☐ Please rush a "New" ESTES Model Rocketry Catalog to:
Friend's Name _____
STREET _____
CITY _____
STATE _____ ZIP _____ Dept. 50A

☐ Please rush a "New" ESTES Model Rocketry Catalog to:
Friend's Name _____
STREET _____
CITY _____
STATE _____ ZIP _____ Dept. 50A

903,028B

SPRING / SUMMER 1981

How To Use These Bonus Coupons

When you decide on a purchase from this catalog, look to see if you can use one of the Bonus Coupons. For example if you purchase the LTV Scout on page 7 you can use the Bonus Coupon which allows you $3.00 toward the purchase of this regularly $9.50 kit. You would cut out the Bonus Coupon . . . send it in with your order and your check or money order for $6.50 plus handling charge of $1.50 . . . and you will receive the LTV Scout for $3.00 off the regular price. Be sure to enclose all Bonus Coupons used with the order form in your return envelope.

All offers good only with the Order Form enclosed with this catalog. You cannot use these Bonus Coupons at your retail dealer. All offers expire 12/1/'81 Substitutions will be made when necessary.

ESTES **Bonus Coupon**

Save Up To $113.35 In Discounts And Special Offers From This Estes Catalog!

#7729
Super Bonus Coupon
ESTES
Worth $1.75
Toward the purchase of $17.50 or more from this catalog.
Expires 12-1-'81

#7730
Bonus Coupon
FREE C5-3 Model Rocket Engines (#1617) (Pkg. of 3) **Worth $2.65** when you purchase a SPACE SHUTTLE #1284
(See Page 2) Expires 12-1-'81

#7731
Bonus Coupon
FREE Roll of 110 Color Film (#2720) **Worth $2.50** when you purchase an AstroCam 110 Aerial Camera with Delta II Rocket (#1327) (See Page 4) Expires 12-1-'81

#7732
Bonus Coupon
Worth $3.00
Toward the purchase of an INTERCEPTOR (#1250)
(See Page 5) Expires 12-1-'81

#7733
Bonus Coupon
Worth $2.75
Toward the purchase of a SOLAR SAILER (#1297)
(See Page 5) Expires 12-1-'81

#7734
Bonus Coupon
Worth $2.75
Toward the purchase of a BOMARC (#0657)
(See Page 5) Expires 12-1-'81

#7735
Bonus Coupon
Worth $1.75
Toward the purchase of an Alien INVADER (#1281)
(See Page 6) Expires 12-1-'81

#7736
Bonus Coupon
Worth $2.25
Toward the purchase of a MARS SNOOPER II (#1220)
(See Page 6) Expires 12-1-'81

"BIG BIRD SPECIAL"

"FREE" gyROC

Skill Level 3
An amazing and unique "helicopter" recovery system makes the Gyroc a must for your fleet. Lifts-off with main fins in straight-away position. Engine's ejection charge allows rear fin tips to snap sideways causing rotor effect and helicopter recovery. Unusual appearance and strange performance are sure to catch the interest of on-lookers. Length: 9.8" (24.9 cm) Dia. 0.736" (18.7 mm) Wt. 0.6 oz. (17 g).
Engines: 1/2A6-2 (First Flight)
A8-3 B4-4 B6-4 B8-5 B14-5
C6-5 **No. 1224.....$3.25 Value**

"FREE" GYROC (worth $3.25) when you purchase any one of these 'D' powered birds.
See Page 21 For Bonus Coupon!

COLOSSUS PERFECT FOR DEMONSTRATIONS!

Over 4 Feet Tall!

Skill Level 2
Huge addition to our Maxi-Brute fleet. Over 4 feet long with big plastic nose cone and press-fit plastic fin-unit. Quick and easy-to-assemble. Really spectacular "D" powered flights with slow realistic lift-off. No painting required! Uses 3/16" launch rod. Length: 51.25" (130.18 cm) Dia. 2.6" (66.04 mm) Wt. 9.52 oz. (270 g).
Engine: D12-3 **No. 1326.....Only $19.00**

Mean Machine

Over 6 Feet Tall!

Skill Level 2
Tallest rocket in the Estes fleet. "D" engine powered for spectacular flights over 800 feet. Over 6 feet long with giant 24" 'chute. Easy-to-assemble for a really great looking bird. Uses 3/16" launch rod. Length: 78.75" (200 cm) Dia. 1.637" (41.6 mm) Wt. 5.8 oz. (164 g).
Engine: D12-5 **No. 1295.....Only $10.00**

maxi alpha

Nearly 3 Feet Tall!

Skill Level 2
Very easy-to-assemble giant scale version of one of our most popular kits. Can be ready-to-launch in approximately 30 minutes. Features new press-fit plastic fin-unit, plus plastic nose cone. "D" engine powered for truly spectacular flights up to 500 feet. Perfect for demonstrations. No painting required! Uses 3/16" launch rod. Length: 33.25" (84.46 cm) Dia. 2.6" (66.04 mm) Wt. 7.4 oz. (210 g).
Engine: D12-3 **No. 1321.....Only $11.00**

#7737
ESTES Bonus Coupon
Worth $3.25
Toward the purchase of a Maxi-ALPHA (#1291)
(See Page 6) Expires 12-1-'81

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ESTES Bonus Coupon
Worth $5.05
Toward the purchase of a STAR WARS™ R2-D2™ (#1395)
(See Page 8) Expires 12-1-'81

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ESTES Bonus Coupon
Worth $1.75
Toward the purchase of a Mini-BOMARC (#0805)
(See Page 7) Expires 12-1-'81

#1394
ESTES Bonus Coupon
Worth $5.05
Toward the purchase of a STAR WARS™ TIE FIGHTER™ (#1394)
(See Page 9) Expires 12-1-'81

#7739
ESTES Bonus Coupon
Worth $3.00
Toward the purchase of a LTV Scout (#1287)
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#1393
ESTES Bonus Coupon
Worth $5.05
Toward the purchase of a STAR WARS™ X-WING FIGHTER™ (#1393)
(See Page 9) Expires 12-1-'81

#7740
ESTES Bonus Coupon
Worth $9.00
Toward the purchase of a COLOSSUS (#1326)
(See Page 7) Expires 12-1-'81

#7742
ESTES Bonus Coupon
"FREE" STREAK (#1204)
Worth $1.95 when you purchase any two kits together on pages 10 & 11.
(See Pages 10 & 11) Expires 12-1-'81

#7741
ESTES Bonus Coupon
Worth $1.50
Toward the purchase of a NOMAD (#1344)
(See Page7) Expires 12-1-'81

#7743
ESTES Bonus Coupon
"FREE" EMERGENCY REPAIR KIT (#2233)
Worth $2.00 when you purchase any one kit on page 12.
(See Page 12) Expires 12-1-'81

#1396
ESTES Bonus Coupon
Worth $12.00
Toward the purchase of a STAR WARS™ Maxi-X-WING™ Fighter (#1396)
(See Page 8) Expires 12-1-'81

#7744
ESTES Bonus Coupon
FREE D12-3 Model Rocket Engines #1666 (Pkg. of 3) Worth $4.95 when you purchase the SATURN V on page 13.
(See Page 13) Expires 12-1-'81

"FREE" 12" Parachute (WORTH $1.10) when you purchase the Blast-Off Flight Pak #1672
See Page 21 For Bonus Coupon!

BLAST-OFF FLIGHT PAK

$21.80 VALUE SAVE $6.81

Ideal Engine Assortment For The Active Rocketeer. Features 24 of The Most Popular Estes Model Rocket Engines, plus Solar Igniters and Parachute Recovery Wadding. Priced At An Excellent Savings.

Includes:
Six 1/2A6-2 High Performance Model Rocket Engines
Six A8-3 High Performance Model Rocket Engines
Six B6-4 High Performance Model Rocket Engines
Six C6-5 High Performance Model Rocket Engines
30 Solar Igniters
One Pkg. Parachute Recovery Wadding

No. 1672 **ONLY $14.99**

61% OFF Engine Special SAVE $12.00
See Page 21 For Bonus Coupon!

40% OFF Mini-Engine Special SAVE $7.70
See Page 21 For Bonus Coupon!

BIG $19.80 VALUE

Receive Six Each 1/2A6-0, B14-5, B14-7, and B14-0 High Performance Estes Engines Plus Igniters. A Total of Two Dozen Popular Engines.

Ship. Wt. 2 lb.

No. 1768 ..... **Only $7.80**

GREAT $19.20 VALUE

Receive Eight Each 1/4A3-2T, 1/4A3-T, 1/2A3-4T, and 1/2A3-OT High Performance Mini-Engines Plus Igniters. A Total of 32 Popular Estes Mini-Engines. Ship. Wt. 1 lb. 4oz.

No. 1769 ... **Only $ 11.50**

#7745
ESTES Bonus Coupon
FREE B6-4 Model Rocket Engines #1606 (Pkg. of 3) **Worth $2.45** when you purchase any Interplanetary Voyager on pages 14 & 15.
(See Pages 14 & 15) Expires 12-1-'81

#7746
ESTES Bonus Coupon
Worth $1.50
Toward the purchase of a Designer's Special Model Rocketry Parts Assortment #1463
(See Page 16) Expires 12-1-'81

#7747
ESTES Bonus Coupon
Worth $1.50
Toward the purchase of a Wizard Rocket (# 1292) when you request an Estes Catalog for four of your friends on the enclosed special form.
(See Page 16) Expires 12-1-'81

#7748
ESTES Bonus Coupon
"FREE" GYROC (#1224)
Worth $3.25 when you purchase a "D" Powered Bird on Page 16.
(See Page 18) Expires 12-1-'81

#7749
ESTES Bonus Coupon
"FREE" 12" PARACHUTE (#2264) **Worth $1.10** when you purchase a BLAST-OFF FLIGHT PAK (#1672)
(See Page 20) Expires 12-1-'81

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ESTES Bonus Coupon
Worth $12.00
Toward the purchase of a 61% Off Engine Special (#1768)
(See Page 20) Expires 12-1-'81

#7751
ESTES Bonus Coupon
Worth $7.70
Toward the purchase of a 40% Off MINI-ENGINE SPECIAL (#1769)
(See Page 20) Expires 12-1-'81

#7752
ESTES Bonus Coupon
Worth $3.00
Toward the purchase of a MARS LANDER #1243
(See Page 22) Expires 12-1-'81

#7753
ESTES Bonus Coupon
Worth $2.70
Toward the purchase of a SOLAR LAUNCHER / PORTA-PAD Combination offer (#1450)
(See Page 22) Expires 12-1-'81

#7754
ESTES Bonus Coupon
Worth 75¢
Toward the purchase of a FIN ALIGNMENT GUIDE (#2231)
(See Page 23) Expires 12-1-'81

#7755
ESTES Bonus Coupon
Worth $1.00
Toward Membership in the ESTES AEROSPACE CLUB #1447
(See Page 23) Expires 12-1-'81

#7756
ESTES Bonus Coupon
FREE B4-2 Model Rocket Engines (#1601) (Pkg. of 3) **Worth $2.45** when you purchase a SPACE SHUTTLE ORBITER
(See Page 32) Expires 12-1-'81

SAVE $3.00
MARS LANDER
NOW ONLY $9.00
See Page 21 For Bonus Coupon!

MARS LANDER

Skill Level 5

Displays futuristic concept for a planetary exploration and landing vehicle. Spring-loaded landing gear simulates realistic upright touch-down. Big 18" bright orange and white canopy 'chute makes for a really great recovery sequence. Includes highly detailed body panels and colorful scale-like decals. Height: 12" (30.5 cm) Dia. 3.8" (96.5 mm) Landing Gear Span 13.2" (33.5 cm) Wt. 3.0 oz. (85 g). Engines: B4-2 (First Flight) B6-2 C5-3 C6-3

No. 1243.....Reg. ~~$12.00~~

SAVE $1.75
On Orders Over $17.50
See Page 17 For SUPER BONUS COUPON!

SAVE $2.70
COMBINATION OFFER
Buy Both The Solar Launcher & Porta-Pad
ONLY $14.00
See Page 21 For Bonus Coupon!

PORTA-PAD

PLASTIC LAUNCH PAD

Space-age designed, the Porta-Pad is rugged enough to take the stress of countless launchings, even with the big Estes "D" engines, yet is lightweight and compact enough for easy carrying and storage. Strong, girder construction. Orange plastic legs snap off for storage in range box. Friction grip secures rod firmly. Accomodates standard 1/8" rod (No. 2234) or heavy-duty 3/16" Maxi-Rod (No. 2239). Tilt adjustment allows you to compensate for wind. Ship. Wt. 1 lb. 8 oz.

No. 2217.....Reg. ~~$7.75~~

SOLAR LAUNCH CONTROLLER

MODEL ROCKETRY'S MOST ADVANCED LAUNCH SYSTEM

Futuristically designed launch control unit that requires only four alkaline pen light batteries for power. Unit is easily assembled in minutes and features safety key, continuity check lamp, ignition button, and 15 feet of light-weight launch cable. Use with Estes Solar Igniters. (Batteries not included.)

No. 2300.....Reg. ~~$8.95~~

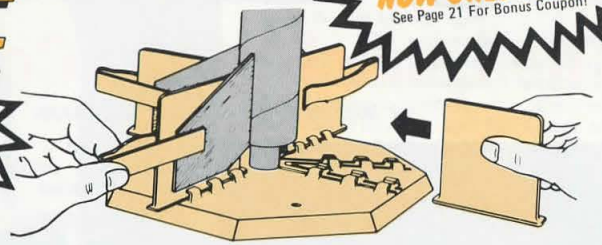
No. 1450
COMBINATION OFFER
Ship. Wt. 12 oz.

ONLY $14.00

FIN ALIGNMENT GUIDE

SAVE 75¢
FIN ALIGNMENT GUIDE
NOW ONLY $5.75
See Page 21 For Bonus Coupon!

•QUICK
•EASY
•ACCURATE



Position and glue fins quickly and easily. Fits body tubes up to BT-101. Designed for either 3 or 4 finned rockets aligning fins at 90° or 120° to each other. Easily assembled with slip-together plastic parts. Adjusts quickly with plastic fin position clips. Ship. Wt. 6 oz.

Cat. No. 2231 **Reg. ~~$6.50~~**

Join the estes aerospace CLUB

Join More Than 25,000 Estes Rocketeers Getting The Most Out Of Model Rocketry

SAVE $1.00
SPECIAL EAC MEMBERSHIP
NOW ONLY $4.00
See Page 21 For Bonus Coupon!

You'll discover membership in the Estes Aerospace Club opens up a whole new world of model rocket activities. Membership is permanent, and your membership kit includes:

- *VIPER ROCKET – Club's Exclusive High Performance Design.
- *MEMBERSHIP CERTIFICATE – Suitable for framing.
- *CLUB EMBLEM – Official iron-on patch. As you progress to higher skill levels, you receive additional iron-on "thrust" bars.
- *DECAL SHEET – Identify your rockets as part of the EAC fleet!
- *RANGE BOX STICKERS – Stick-ons for your multi-purpose range equipment.
- *EAC STATIONERY – Distinctive stationery for notes and letters.
- *MODEL ROCKETRY TECHNICAL MANUAL – Includes information on construction techniques, finishing, stability, tracking, recovery systems, multi-staging, and boost gliders, plus much, much, more.
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MODEL ROCKET NEWS

SPRING/
SUMMER 1981
Vol. 21 No. 2

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Randy Ford . . . . . Staff Artist
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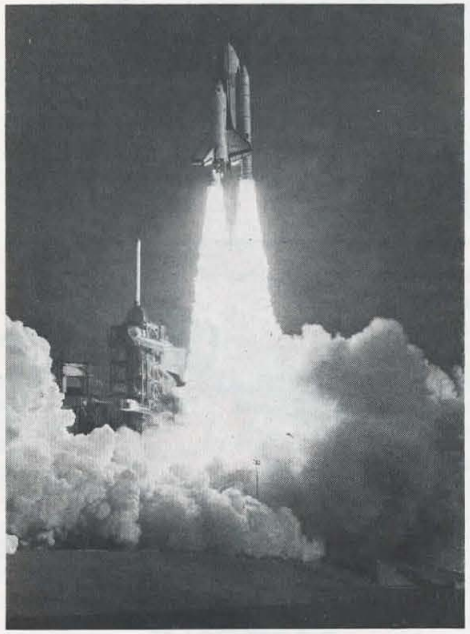
The Launch of the Columbia

by Michael A. Banks (NAR No. 30338)



Remote camera view . . . beginning of a new era!

— Photo Courtesy NASA.

April 12, 1981. Cape Canaveral, Florida. 7:00:03.983 a.m. At this instant, America re-entered the Space Age as the Space Shuttle Columbia lifted off Pad 39A. Climbing spaceward on a pillar of fire, the Columbia's launch was watched by millions around the world as she headed for a virtually flawless maiden voyage and a place in history.

Were you there? If not, you may have wondered what it was like to witness the pre-launch preparations, to share in the excitement at the launch site as the countdown progressed.

In a word, it was thrilling. And, the events surrounding the launch were almost as exciting as the launch itself. Nearly 500,000 people turned out to see the launch, and "launch fever" reached epidemic proportions. The day before the scheduled launch date of April 10, roads and beaches within 20 miles of the Cape were filled to capacity with campers, tents, and cars as viewing sites were "staked out". Hotels in a much wider area were filled completely, and a festive atmosphere prevailed.

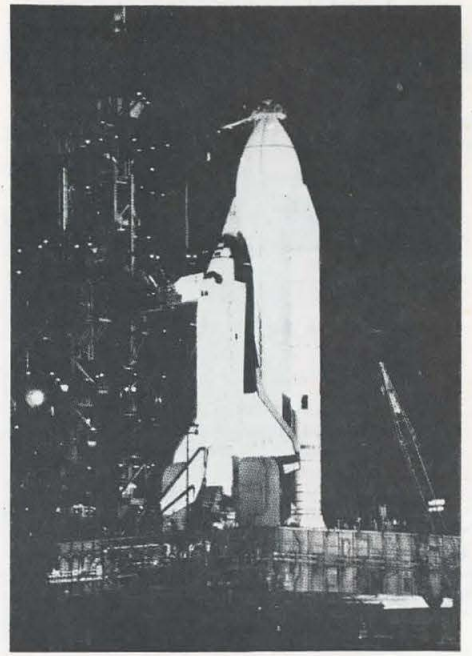
Magazine, newspaper, and NAR photographers ready for the launch.

— Photo Courtesy Alan Williams.

In the press area, adjacent to the mammoth Vehicle Assembly Building, over 4000 reporters and photographers were packed into a field only 3 miles from the launch pad. Here, the activity was almost as intense as that in Mission Control as TV and Radio crews raced to set up their equipment alongside hundreds of newspaper and magazine photographers. The area somewhat resembled a carnival, with a massive tent set up as a work area, grandstands, and a forest of tripods bearing exotic camera equipment.

Astronauts Crippen and Young prepare for launch.

— Photo Courtesy NASA.



First view of the shuttle, Thursday, April 9, 1981.

— Photo Courtesy Alan Williams.

The view of the Columbia was unobstructed, across the open water of the barge turnaround area. Just offshore of the press area, a mockup of the Shuttle's cabin floated, and crews practiced water rescue with the mockup the day before the launch.

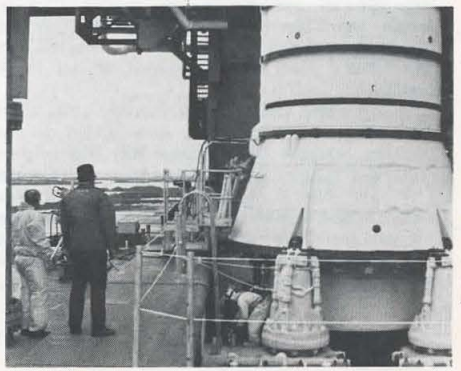
For those lucky enough to be in the press area, there was much more to do than make preparations. Special press tours took members of the media to within a quarter mile of the Columbia, as well as to the "clean room", where the Spacelab "test article" was undergoing tests. An additional highlight of the tours was the landing field just Northwest of the VAB, where the Columbia and its sister ships will land in the future. At the field was the specially modified T-38 jet trainer which shuttle pilots use to simulate landing a shuttle.

Retrieval vessel designed to recover shuttle boosters.

— Photo Courtesy NASA.

Eventually, all of the preparations were complete, and Launch Day began — quite early for most workers and observers. Enormous traffic jams began blocking roads to the Cape as early as 1:00 a.m. on Friday, and NASA officials opened the gates to those with passes 2 hours earlier than planned. This was of little help, however, as traffic backed up over 10 miles in all directions an hour before launch time.

The well-known computer problems popped up then, and for those of us at the press site, it was a matter of sitting and waiting. Loudspeakers piped in the conversations between Houston and the Cape, and we were kept well-informed as to developments. Speculation came and went and, despite everyone's hopes, the launch was scrubbed shortly after 10:00 a.m.



Shuttle workers next to base of solid rocket booster.

— Photo Courtesy NASA.

The waiting began again, although many of the observers — both at the Cape and in the surrounding areas — were unable to remain for what appeared to be an uncertain length of time before the computer problem was resolved.

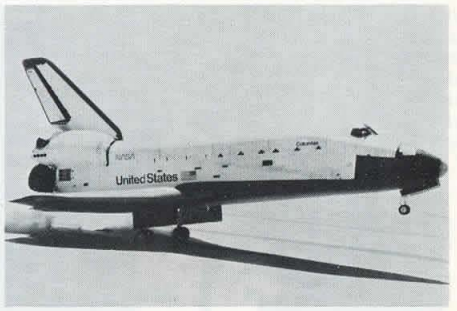
For those who stayed on, the delay was an opportunity to relax, renew acquaintances, and double-check equipment. The mood in the press area was relaxed the remainder of the day, and several VIP's, including STAR WARS creator George Lucas, Steven Spielberg, and Neil Armstrong were in evidence, providing interview material for the mostly inactive press. Quite a few model rocketeers, including G. Harry Stine, were also on hand in both professional and personal capacities.

The excitement picked up again on Saturday, as the computer problem was tracked down, rectified, and the countdown finally recycled. The Sunday morning pre-dawn hours were a repeat of the previous Friday, although on a smaller scale, since so many observers had been forced to leave by the delay.

Finally, the moment arrived. The main engines ignited, followed slightly over 2 seconds later by the solid rocket boosters, and Columbia was on her way, the combined 6.5 million pounds of thrust of her engines shaking the ground for nearly 50 miles. (In

John W. Young during the 54 hours aboard the shuttle.

— Photo Courtesy NASA.



Successful landing, April 14, 1981.

— Photo Courtesy NASA.

case you're wondering, in model rocketry terms, the Columbia's Main Engines combined generate a thrust equal to a "T" engine, and the SRB's each are equivilant to an "AA" engine!)

The ensuing test mission proved the Columbia in all respects, and NASA is now looking forward to a second test flight (there will be 4 altogether) in September or October.

The Columbia is currently at Kennedy Space Center for refitting, having been ferried from its landing site in California to KSC by the Shuttle Carrier Aircraft (a modified 747). In the meantime, work on the Challenger, the second space shuttle, continues, with a goal towards operational flight in 1983.

Eventually, the shuttles Discovery and Atlantis will follow the trail blazed by Columbia, also. By then, shuttle launches may well be routine. But the activities supported by space shuttles will not be routine — a new era will be under way. Mankind will be actively colonizing and industrializing space, a period which future historians will undoubtedly label "the Shuttle Era."

Attention Rocketeers:

"Have You Joined The NAR?"

Now that you are an active rocketeer we would like to recommend membership in the National Association of Rocketry.

As an NAR member you will be able to compete in officially sanctioned local, state, national, and even international model rocketry meets. Your rockets and designs will become eligible to set national and international records and most important, you will be kept informed of happenings in model rocketry available now too!

Also as a NAR member you will receive a monthly copy of Model Rocketeer, a magazine published as a service by the NAR for its members. It contains news of upcoming model rocketry and space events, manufacturer news, modroc tips, designs and plans, news of the NAR, its members, and other people in the aerospace field. Also, it contains editorials, humor and rocket history.

For more information and a membership application write: NAR Headquarters, Dept. E-10, P.O. Box 725, New Providence, NJ 07974.

JOIN TODAY!

Help Us Publish The Model Rocket News

Got any good ideas, cartoons, technical articles, or contributions? Then why not submit them to us for possible publication? Our constant aim is to make MRN a better, more interesting magazine and yours may be just the contribution we need.

Illustrations of ideas for the Idea Box and cartoons should be drawn in ink and no smaller than 4 inches by 4 inches. Technical articles and contributions should be well written and photos accompanying the articles should be packed between cardboard sheets to avoid damage.

All contributions become the property of Estes Industries and cannot be returned. Address all material to: MRN Editor, Estes Industries, Penrose, CO 81240.

Should your article, idea or cartoon be used in MRN, we'll reward your efforts and talents with an Estes Merchandise Certificate, the amount of which will be determined by the MRN editorial staff.

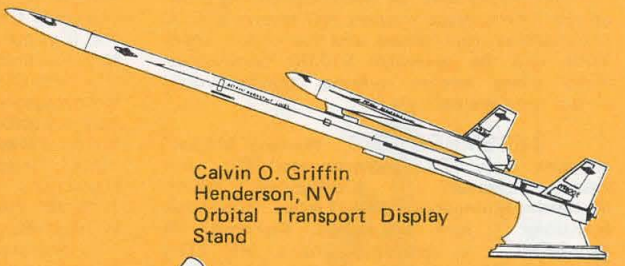
Hope to hear from you soon!

ESTES Display Stand Contest Winners

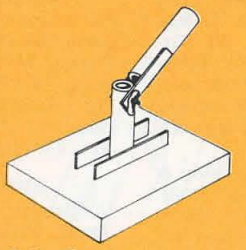
A DAMON COMPANY

We are pleased to announce the results of the Estes Display Stand Contest. The twenty rocketeers listed below will each receive $25.00 in free Estes Merchandise. Congratulations to them for their original ideas on ways to display model rockets!

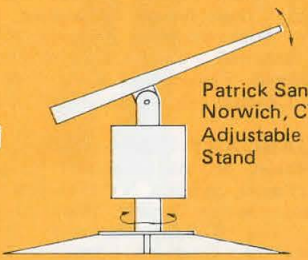
Alan Sekelsky
Croton-on-Hudson, NY
Elevating Hydraulic Missile Launcher



Calvin O. Griffin
Henderson, NV
Orbital Transport Display Stand

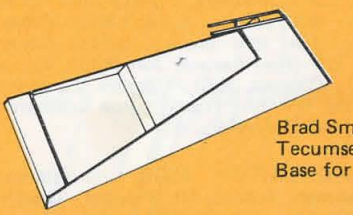


Brian Evans
Kensington, OH
Tilt-A-Stand



Patrick Santos
Norwich, CT
Adjustable Launch Stand

Name & Address	Name of Display Stand
Darrin Morrow Harrisburg, PA	Mobile Missile Stand
Shawn Higgins Dawsonville, GA	The Hanger Display Stand
Arthur Nestor Zelienople, PA	Wall Rack Display
Craig Brown Salem, IN	Display Mobile
Alexander Pucciariello Roscoe, NY	Underground Missile Silo
Robert M. Garret Atlanta, GA	Display & Launch Stand
Renny P. James Kirk, CO	Astroid Space Station
Mark Parsons Huntington, WV	Mystery X
Randy Pavlica Temple, TX	GANTRY
Roban Bieber Kansas City, MO	Horizontal Rocket Stand
Chris Hoffman Xenia, OH	Rotating Launch Pad Display Stand
George Leonberger Cookville, TX	Cradle Stand
Todd Pillard Haxtun, CO	Expandable Stand



Brad Smith
Tecumseh, MI
Base for Rockets

Gordon Bugg
Gadsden, AL
Gantry Pad/Large, Display Stand No. 5

Mark Rainey
Hackettstown, NJ
Saturn V Launch

DESIGN OF THE MONTH
WINNERS

Congratulations to another fine group of Estes Rocketeers for their outstanding DOM entries. First place winners will receive $75.00 merchandise certificates and honorable mentions will be awarded $10.00 certificates. Keep those entries coming, maybe you'll be our next winner!

DECEMBER 1979 —Winners: Michael Kempel, Katy, TX (Experimental III). Bill Patton, Ligonier, IN (Corkscrew). Milton Matteson, Minneapolis, MN (Tartar). Honorable Mentions: John Slaubaugh, Kokomo, IN (Mini-Fly). L. Szereny, Boyds, MO (The Cruiser). Marc Ferrari, Austin, TX (Atom Smasher). Dave Novak, Greenfield, WI (Orbitron). Mike Stidham, Bellevue, KY (Starcruiser Atlantis). Chris Donahue, Northport, AL (Vorpal Falcon U.E.V.E.). Raymond Castro, Chicago, IL (Body Tube Marginer).

JANUARY 1980 —Winners: Randy & Ross Wilson, N. Mankato, MN (Quadrefoil). William Pastel, Jamaica, NY (The G.S.F. Model Rocketry Launch Center). Remo Ottone Jr., Salinas, CA (C.S.C. Starliner). Honorable Mentions: Dee Shappell, Longview, TX (Solid State Launch Controler). David Miller, East Hampton, MA (Theta X-29). Max Mosser, Pembroke, GA (No Name). Duane Couch, Coquille, OR (Red Baron). Jon Miller, Bunceton, MO (Gamma X-5). Cahrles Demirjian, Fayetteville, NY (Sky Hawk). Bob Covington, St. Louis, MO (Pneumatic I).

FEBRUARY 1980 — Winners: Steve Stenman, Alpena, MI (Falcon). Geoffry Albert, Boulder, CO (TRS-6). Dan Clemens & Jeff Lurbrick, Summerville, OR (ASL). Thomas Barnes, Gahana, OH (P.O. Box 1). Tom McCallister, Dotham, AL (Velum). Honorable Mentions: Scott Silverman, E. Brunswick, NJ (X Celebration). Randy Redmon, Chagrin Falls, OH (Delta). Steven D. Wayner, Bellevue, WA (Tritan). Christopher Hirst, The Netherlands (The Flying Dutchman Launch System). Thomas Payne Jr., Tappan, NY (The Original). Jeff Leonard, Waukee, IA (Deltoid). John A. Giannetti, Sykesville, MD (Cerberus 1). Theodore Dombrowski, Detroit, MI (Windtunnel). Douglas Ashcraft, St: Louis, MO (Lance). Mike Pisano, Cleveland, OH (Guideline). Brad Roberts, Orchard Lake, MI (Charger).

MARCH 1980 — Winners: Paul Graham, Monroeville, PA (Noah's Arc). Eirik Andersen, Isle, MN (Interplanetary Invader). Eric White, Cumberland, MD (Shebah 3). Cory Swanson, Duluth, MN (The Defiant). Kemmon Gull, San Antonio, TX (Computa-Launch). Steve Buhrow, Chippewa Falls, WI (Simple Launch Control). Honorable Mentions: Warren Block, Chadron, NE (Rechargable Launch System). Mark Grebe, York, NE (Cylindrus 7). Aian K. Erickson, Auburn, MA (Launch Pad). Joseph B. VanLoon Jr., Colorado City, CO (MK1 Control). Richard J. VonDaggenhausen, Byron, MI (Inter-Galactica). Jeff Kwaitkowski, Nanticoke, PA (The Argonaut). David Swanton, Menasha, WI (Aristide). Chuck Matz, Orland Park, IL (IPB II Hawkeye). Doug Ellen, Grand Rapids, MI (Falstaff Two). Daniel Lawrenz, Manitowoc, WI(Red Baron). Chris McCord, Mt. Pleasant, TX (Starblazer). Kevin Houser, Lincolnton, NC (Atom Smasher). Greg Lewis, North Liberty, IA (The Thunderbolt). Stephen Dobro, Sharon, MA (Gemini 7). John Buckner, Kannapolis, NC (The Sting). Kirk Wille, Corvallis, OR (Tiberius-One). Mark Potts, Williamsfield, IL (Collapsar I). James Surrey, Arlington, VA (Skylark).

APRIL 1980 — Winners: Michael V. Broder, White Plains, NY (Gnat). Lance Jones, Winnipeg, Manitoba (White Dragon). David Kocherhans, Provo, UT (Starship Torillos II). David Miller, East Hampton, MA (Rocket Launch System Delta). John Gillio III, San Jose, CA (Saturn III). John Moser, Bethel Park, PA (Starhawk). Jim Monteith, Jackson, MO (Tomahawk). Honorable Mentions: Kirk Darbe, De Ridder, LA (Gammatron III Attack Fighter). Theodore Dombrowski, Detroit, MI (XL-IIIA-Garros). Ken Wolfe, Oberlin, OH (Mary Lou Multiple Launch System). Robert Szostak, Northbrook, IL (Safety Launch System). Andy Hay, Mississaug, Ontario (The Skydemon). Herb Johnson, North English, IA (HI FURY). Bill Echterling, Arvada, CO (The Hourglass). Donald J. Svita, Melrose Park, IL (Rad Waste Shuttle).

MAY 1980 — Winners: Eric Bowles, Nagoya, Japan (Three Stage "229 OMICRON"). Hays Falconburg, McClave, CO (Circlypse). Eric Falconburg, McClave, CO (Multi Pad Launcher). Doug Perilli, Weston, MA (Blue Devil 7). Paul Blase, Wilmett, IL (Skywing Orbital Lab). Honorable Mentions: James M. Petro, Gary, IN (Sun Chaser). Ken Dailey, Sedona, AZ (Electra). Bruce D. Morrison, Smithville, OH (No Name). Kurt Hofgard, Boulder, CO (Creature). James Brown, Farmington, NM (Pegasus). Jeff Benton, Kooskia, ID (S-28 Hustler). Joe Kenny, Westfield, NY (Horizon). Ernie Hofer, Owatonna, MN (Antipus). Jeff Ritter, Vancouver, WA (Solar Launch System). David Bethke, Grayslake, IL (Proteus). Neftali S. Rivera, Anasco, Puerto Rico (Yaguin-2). Tim Zgonena, Riverwoods, IL (Tri-Jen). Eric King, Westlake Village, CA (The Striker).

SKYLARK

SKILL LEVEL 2

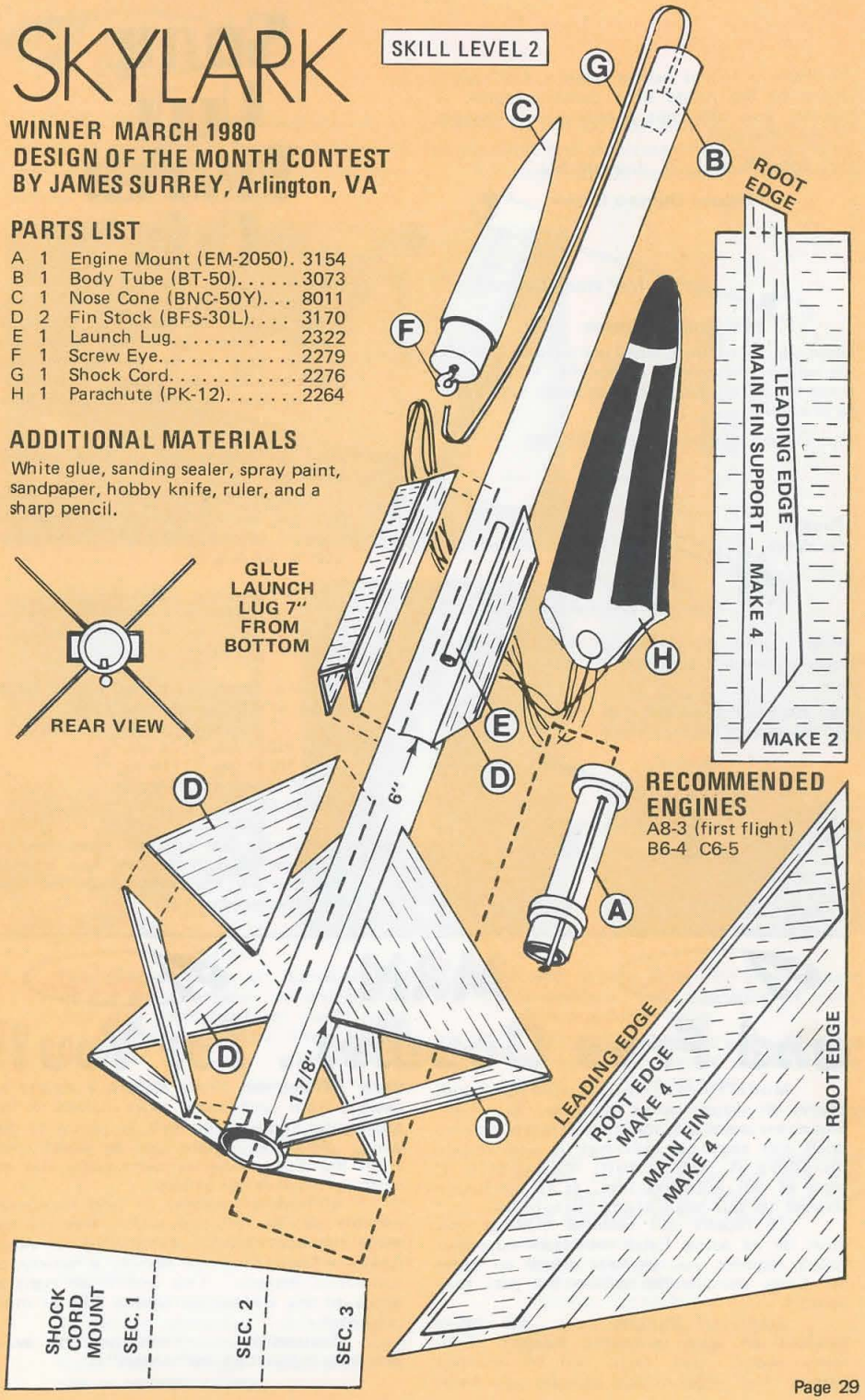
WINNER MARCH 1980
DESIGN OF THE MONTH CONTEST
BY JAMES SURREY, Arlington, VA

PARTS LIST

A	1	Engine Mount (EM-2050).	3154
B	1	Body Tube (BT-50).	3073
C	1	Nose Cone (BNC-50Y).	8011
D	2	Fin Stock (BFS-30L).	3170
E	1	Launch Lug.	2322
F	1	Screw Eye.	2279
G	1	Shock Cord.	2276
H	1	Parachute (PK-12).	2264

ADDITIONAL MATERIALS

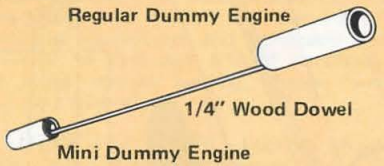
White glue, sanding sealer, spray paint, sandpaper, hobby knife, ruler, and a sharp pencil.



The Idea Box

To make a rocket holder, glue a 1/4" wood dowel to the inside of a dummy engine. If desired, you may put a mini-dummy engine on the other end.

By: John Nickel, St. Joseph, MI.

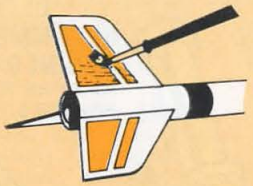


When you first buy a small paint brush, cut off the end of the bristles diagonally. This gives a point for detail and a wider area for covering a large surface.

By: Dave Dobson, Gays Mills, WI.

When putting on decals use wet clean paint brush to smooth out wrinkles and wipe away glue.

By: Raymond Lopez, Las Vegas, NV.



Stump Your Teacher Quiz

Q. What is meant by laminar flow?

A. Laminar flow means that air is flowing smoothly over the surface of the model rocket. When something causes the smooth flow to be interrupted, tiny waves or eddies are set up. This uneven sort of flow is called turbulent flow.

Q. How far will a golf ball fall in four seconds?

A. To answer this, you need to know the formula for calculating the distance traveled by a falling body. This equation is: $s = \frac{1}{2} g t^2$

s = distance
g = acceleration due to gravity - 32 ft./sec.^{2}
t = time

To solve the problem, substitute actual values in the equation and solve.

$s = \frac{1}{2}$ (32 ft./sec.^{2}) (4 sec.^{2})
$= \frac{1}{2}$ (32 ft./sec.^{2}) (16 sec.^{2})
= (16 ft./sec.^{2}) (16 sec.^{2})
= 256 ft.

Assuming that you are measuring the distance fallen in the first four seconds and that you are dropping the ball from near the surface of the Earth.

ESTES MRN ESTES

and Free Goodies.. for You!!

Model Rocket News is now published three to four times a year. We will, whenever possible, mail your MRN to you with our seasonal mailings in addition to including it with return mail-orders, as long as our supplies last, as an exclusive service to our mail-order customers.

To receive our seasonal mailings you must be an active Estes mail-order customer which requires you to have placed an order for Estes merchandise within the past four months.

Additional Bonuses . . . All orders received on even numbered months, (February, April, June, etc.), will be returned with a "free" plan to help increase your Estes fleet. These new plans feature a variety of designs from single-stage sport models to far-out exotic rockets you will be proud to display. All "free" plans can be constructed from the Estes hi-performance parts and accessories listed in our catalog.

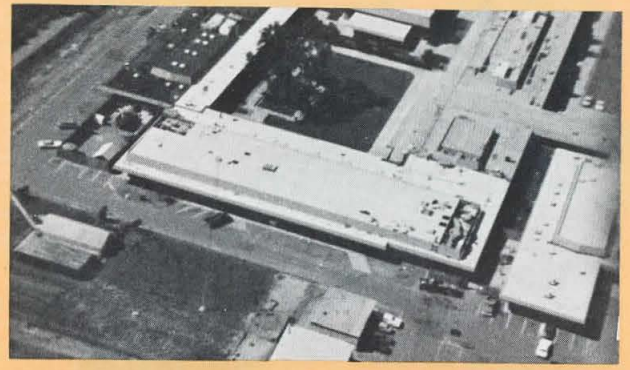
All orders received on odd numbered months will be returned with a free iron-on decal for your t-shirt, windbreaker or range jacket. These iron-ons feature a variety of super-neat designs. You iron it on right at home to any surface containing 50% or more polyester.

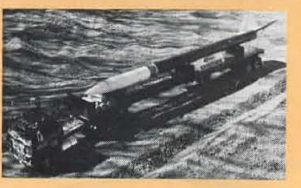
Remember . . . these items are available only with return mail-orders!!!!

ESTES
A DAMON COMPANY

PHOTO CONTEST

$500.00 in free Estes Merchandise to be awarded to the 20 best entries. Here's your chance to win $25.00 worth of Estes rocket supplies and equipment while displaying your skills in model rocketry photography. To enter simply follow the rules listed below:





RULES:

1. Photographs, slides, or AstroCam 110 photos are acceptable. All entries must deal with some aspect of model rocketry. Please do not send movie films or negatives.
2. You may enter as many times as you like.
3. Employees of Estes Industries or members of their immediate families are not eligible.
4. All entries become the property of Estes Industries. We will return entries if requested and a self-addressed, stamped return envelope of the proper size is included.
5. Pack entries carefully - use cardboard for added protection. Entries should be marked "Photos enclosed". Note: Estes cannot accept responsibility for lost or damaged entries.
6. Entries will be judged for visual impact, composition, and originality of model rocketry subject matter.
7. A $25.00 Merchandise Certificate will be awarded to the best 20 entires. Decisions of the judges are final.
8. Winners will be announced in a future issue of Model Rocket News.
9. Be sure to include your name, age, address, city, state and zip code with each entry. Please include your Skill Level if you are an EAC member.
10. Mail entries to:
    Estes Industries
    "Photo Contest"
    Penrose, CO 81240
11. Deadline for receipt of entries is midnight December 1, 1981.

GOOD LUCK!

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